

*Because the death rate for women is declining much faster than the rate for men, it is suggested that "something" other than a basic biological difference between the sexes accounts in part for the higher mortality among men. It is proposed that more attention be given to the study of male mortality.*

## Why Is the Sex Difference In Mortality Increasing?

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IN 1662 Captain John Graunt, citizen of London, in a publication entitled "Natural and Political Observations" reported that more men than women are born and that more men die before their time. He noted, however, that "physicians say that they have 2 women patients to 1 man." These observations were made by a layman nearly 300 years ago; yet, public health workers even now give these matters little attention.

Today in Florida and in the United States about 106 white boys are born for each 100 white girls. The death rates in each age group are considerably higher among males than among females, but various surveys in recent years have shown that women are ill more often. Among the nonwhite population, too, more boys than girls are born and the death rate for males is higher than the rate for females, although the differences are not nearly as great as among the white race.

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The life expectancy of a white girl at birth in Florida is 73.9 years, but a white boy at birth may expect to live only 66.7 years, a difference of 7.2 years. That this difference in life expectancy exists is well-known to all public health workers, but few have given much thought to the reasons for it. Many of those who have, apparently have concluded that there are basic biological differences between the sexes which bring about a higher mortality among men. This view is supported to some extent by the fact that nature arranges for the birth of a greater number of boys than girls.

It is conceded that women may be biologically somewhat more resistant to disease and death than men. Evidence is available, however, which suggests that men are in some way, consciously or unconsciously, adding to their native handicap in the struggle for existence and that, therefore, something can and ought to be done to reduce mortality among men.

### Death Rates of the Sexes, 1920-50

In support of the premise that the higher mortality among men is due in part to something other than basic biological differences is the evidence provided by comparison of the

male and female death rates over a long period of time. Death rates for both sexes, of course, have been declining for many years. Significant is the fact that the rate for females has declined much more rapidly than the rate for males (table 1).

The age-adjusted death rate in Florida for white males decreased from 13.8 per 1,000 population in 1920 to 9.1 in 1950, a decrease of 34 percent. The rate for white females in Florida declined from 12.1 per 1,000 population in 1920 to 5.6 in 1950, a decrease of 54 percent. The most startling facts, however, are these:

1. In 1920, the death rate among white males in Florida was 14 percent higher than the rate for white females.

2. In 1930, the death rate among white males in Florida was 34 percent higher than the rate for white females.

3. In 1940, the death rate among white males in Florida was 53 percent higher than the rate for white females.

4. In 1950, the death rate among white males in Florida was 62 percent higher than the rate for white females.

The same trend is found among the white population in the United States as a whole, although the differences between the male and female rates are less; and also among the non-white population in Florida and in the United States as a whole, although again the differences between the rates are less.

Unless one is prepared to contend that the human race has changed biologically during these 30 years, it must be agreed that something other than a basic biological difference between the sexes accounts for the more rapid decline in the death rates for women than in the rates for men. It is hoped that more interest will be shown in finding this "something" and that it will be, at least partially, preventable or correctable.

### Comparisons by Age Group

As shown in table 2, the percentage difference between male and female rates increased in every age group during the period 1920 to 1950, although the extent of the increase has varied from group to group. It will be noted that the largest percentage difference in the sex death

**Table 1. Age-adjusted death rates, by race and sex for the United States and Florida, census years, 1920-50**

Year	Age-adjusted death rates <sup>1</sup> per 1,000 population				Percentage excess of male rate over female rate	
	White males	White females	Non-white males	Non-white females	White	Non-white
<i>United States</i>						
1920-----	14.2	13.1	20.4	20.0	8	-3
1930-----	12.8	10.6	21.0	19.2	21	9
1940-----	11.6	8.8	17.5	14.9	32	17
1950-----	9.7	6.5	13.5	10.9	49	24
<i>Florida</i>						
1920-----	13.8	12.1	19.5	18.8	14	4
1930-----	13.1	9.8	23.3	19.5	34	19
1940-----	11.5	7.5	20.1	15.8	53	27
1950-----	9.1	5.6	14.7	11.0	62	34

<sup>1</sup>Total United States population of 1940 used as standard.

rates shifted from the group under 1 year of age in 1920 to the group 15-24 years of age in 1950. In 1920, the differences were relatively small for persons past their first birthday, the largest difference being 17 percent. However, in 1950, differences were as high as 114 percent, and for all ages from 15 to 74 years the rates were at least 50 percent higher for males than for females. A specific example of the change which has been taking place can be seen in the data for the 45-54 year age group: The rate for men was only 10 percent higher than the rate for women in 1920 and 78 percent higher in 1950.

### Comparisons by Cause of Death

Although death rates for nearly every cause of death for both sexes have been declining steadily, there have been a few notable exceptions.

It is well known, of course, that deaths from lung cancer are on the increase, especially among men. In 1950, the death rates from respiratory cancer were 24.1 and 5.4 per 100,000 for white males and females, respectively, as

**Table 2. Sex differences in death rates for the white population in the United States, 1920 and 1950**

Age group (years)	Death rates per 1,000 population				Percentage excess of male rate over female rate	
	1920		1950		1920	1950
	Males	Fe-males	Males	Fe-males		
Under 1.....	98.1	76.1	34.0	25.7	29	32
1-4.....	9.8	9.0	1.4	1.1	9	27
5-14.....	2.7	2.3	.7	.5	17	40
15-24.....	4.2	4.3	1.5	.7	-2	114
25-34.....	5.9	6.5	1.8	1.1	-9	64
35-44.....	7.7	7.3	3.8	2.4	5	58
45-54.....	12.0	10.9	9.8	5.5	10	78
55-64.....	24.2	21.7	23.0	12.9	12	78
65-74.....	54.2	49.9	48.6	32.4	9	50
75-84.....	122.5	116.4	105.3	84.8	5	24
85 and over.....	253.6	247.0	221.2	196.8	3	12

compared to rates of 4.8 and 2.1 in 1930. Here again rates for males are higher than those for females, and the difference is apparently increasing. If excessive smoking has contributed to this increase, as has been alleged, it will be interesting to follow the future trend of this disease to learn whether the increase in smoking among women will decrease the difference in mortality.

In considering sex differences in mortality, the trends in mortality from the cardiovascular-renal diseases and ulcer of the stomach or duodenum are particularly interesting. It is generally thought that emotional tension, overwork, and worry have something to do with the development of these diseases and with their management and cure. Added together, the many kinds of cardiovascular-renal disease cause more than half of all deaths in the United States today. Ulcer of the stomach or duodenum, although the cause of a much smaller percentage of deaths, is also a very common disease. As pointed out in a recent study by Kaufman and Woolsey (1), a similar disparity in trend between the sexes is found for these two causes of death.

In this study death rates of the two sexes were compared for the periods 1921-26 and 1942-47. Among women, the death rates for both causes of death declined remarkably, and the declines were greatest in the younger age groups. The cardiovascular-renal disease death rate for

women aged 25-34 years in the period 1942-47 was only 54 percent (down 46 percent) of the rate in the period 1921-26, and the declines were substantial but less in the older age groups. The death rate among women for ulcer of the stomach or duodenum was only 30 percent (down 70 percent) of its former rate in the age group 25-34 years, and again the declines were substantial but less in the older age groups.

Among men, however, the trend in mortality from these causes of death was radically different. Although the rates for cardiovascular-renal diseases declined slightly among men in the age groups 25-34 years and 75-84 years, mortality in all the intervening age groups increased. The greatest increase, 35 percent, was among men aged 45-54 years. Among women in the same age group, the death rate for the period 1942-47 had declined to 73 percent (down 27 percent) of its former rate. The male death rate for this age group for 1942-47 was twice the female rate. For ulcer of the stomach or duodenum, the trend among men was about the same, except that increased mortality began at age 45 years and persisted into all the older age groups. That the trend in mortality from this cause has not changed is demonstrated by the fact that in 1950 the death rate was four times as high as the rate for women for all age groups.

In 1950, the death rates in the United States for nearly all of the 64 major causes of death were substantially higher among men than among women (2). Female mortality was significantly higher for only 3 of the major causes: diabetes (62 percent higher among women), cancer of the breast, and cancer of the genital organs. It is not surprising, perhaps, that the death rates from suicide and homicide were about three times as great among men as among women, that accidental deaths were more than twice as frequent, or that the death rate from syphilis was twice as high. It may be surprising to many people, however, that the tuberculosis death rate was more than twice as high among men as among women and that men died 50 percent more often from poliomyelitis and 20 percent more often from pneumonia and influenza.

The cancer death rate was 5 percent higher for white males than for white females. Cancer

of the buccal cavity and pharynx and of the respiratory system killed four times as many men as women.

It is interesting to note that the two types of cancer which cause more deaths among women than men, cancer of the breast and of the genital organs, are relatively more easy to detect and to cure than most other types of cancers. The only other major cause of death which seems to affect women more than men, diabetes, is also relatively easy to detect and manage, and, even if it cannot be cured, it need not cause early death.

### Speculations and Suggestions

Additional figures could be cited, but it is believed that enough have been given to establish that the death rate for women is declining much faster than the rate for men. Figures have also been given to show that male mortality is higher for most of the major causes of death. It has been suggested that the native frailty and fragility of the male cannot be the sole cause for the higher mortality, and the hope that study and research will be made to find other causes has been expressed. At present, it is possible only to point out a few factors which may have some bearing on the problem.

The man of today certainly has some handicaps which cannot be easily cast aside. In general, he is still the main breadwinner of the family and, therefore, is inevitably exposed to the worries and pressures of modern life, as well as to its physical dangers, to a greater degree than women. However, it does seem peculiar that the trend in mortality favors women at a time when more and more women have become employed and in occupations once monopolized by men. It may be difficult to show, therefore, that occupations account, in any large measure, for the higher mortality among men, although an occupational relationship should be investigated. A study of the Registrar General of England and Wales (3) pointed out that the rise in the mortality of men in going down the socioeconomic scale is largely a product of environment, rather than of occupation. This conclusion was based on the finding that the mortality of the wives of men in the various socioeconomic classes showed the same rise in

mortality in proceeding down the socioeconomic scale as did the mortality of the men.

It may well be that a difference in the reactions of men and women to modern life, including work, has more bearing than the work itself. Men are considered more dynamic than women, and nature may have intended that their energy should be dissipated largely by physical exercise. Today, physical exercise is not the necessary part of life it once was; moreover, it is assiduously avoided by some. It is possible that women escape the consequences of worry, frustration, disappointment, and tension to a greater degree than men by being more vocal about these conditions, through tears or occasionally hysterics. The reaction of men, on the other hand, may be in the form of coronary disease, hypertension, or ulcers.

Men are naturally more aggressive and venturesome than women. Their aggressiveness and lack of caution might explain their higher venereal disease rate, greater addiction to alcohol, and greater tendency to homicide and accidents. It is possible that males get around more and therefore suffer greater exposure to tuberculosis, poliomyelitis, pneumonia, and influenza. However, it is not established whether males contract infections and communicable diseases more frequently or whether they are simply less resistant to them and recover less often.

It may be that women are better and more frequent customers of modern medical science than are men. Sickness surveys have shown that women are ill more often than men (4). Women possibly have a greater tendency to stay away from work for mild illnesses than men, to go to bed sooner and stay longer, to go to see their physician earlier and return more often, and to follow their physician's instructions more faithfully.

Certainly, there are many more specialists in diseases of women than in diseases of men. It is also true that Federal and State governments have had special health programs for women for over a quarter of a century, but they have had none aimed specifically at improving the health of men. The health programs for women, of course, have been aimed primarily at preventing illness and death incident to the complications of childbirth, and there has been

a progressive decline in deaths from such complications.

The facts raise the suspicion that men are suffering from the very ancient delusion that they are the stronger and superior sex, when, as a matter of fact, we can only be sure that their skeletal muscles are stronger. In past ages a big biceps counted a great deal in the battle for survival, but it means little now. An inventory should be taken of the physical, mental, and emotional assets and liabilities of the male, and the knowledge used to halt the trend that has been shown.

It is not suggested that less attention be paid to the health of women, for much remains to be done for them. The time has come, however, to do more about the health of men, particularly middle-aged and older men. The male population should be aroused to take advantage of all

that modern medical and public health sciences have to offer. The medical and public health professions should be made more alert to the greater hazards faced by men.

#### REFERENCES

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- (3) Great Britain. Registrar General: Decennial supplement, England and Wales, 1931. Part 2A. Occupational mortality. London, His Majesty's Stationery Office, 1938.
- (4) Collins, Selwyn D.: Sickness surveys. In *Administrative medicine*, edited by Haven Emerson. Rev. ed. New York, Thomas Nelson and Sons, 1951, Chap. 29.

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## Medical Research Fellowships

Research experience for individuals interested in investigative careers is being offered to applicants for 1955-56 postdoctoral fellowships in the following programs administered for their sponsors by the National Research Council's Division of Medical Sciences:

Study in all branches of the biological, chemical, and physical sciences and of clinical investigation applicable to the study of typical or malignant cancer growth. Also, British-American exchange fellowships for advanced study in Great Britain on special problems pertaining to cancer growth. The awards are made by the American Cancer Society.

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